

STATE OF CALIFORNIA

California Environmental Protection Agency
Department of Toxic Substances Control

**SELF – TRAINING MANUAL FOR
REMOVING MERCURY SWITCHES FROM VEHICLES**

A Guide for Auto Repair Shops

June 2004

SELF-TRAINING MANUAL FOR REMOVING MERCURY SWITCHES FROM VEHICLES

A GUIDE FOR AUTO REPAIR SHOPS

TABLE OF CONTENTS

<u>Topic</u>	<u>Page</u>
INTRODUCTION.....	2
REMOVING, REPLACING, AND RECYCLING MERCURY SWITCHES	4
Step 1: Removing Light Assemblies	5
Step 2: Dismantling Light Assemblies	8
Step 3: Replacing Mercury Switches	9
Step 4: Storing Mercury Switches.....	15
Step 5: Recycling Mercury Switches	15
MERCURY SAFETY AND SPILL GUIDELINES	17
FOR MORE INFORMATION.....	19
REFERENCES.....	20
APPENDICES	
A. List of Vehicle Makes and Models that have Mercury-Containing Convenience Light Switches in the Hood and/or Trunk	21
B. Sample Log for Mercury Switch Removals	26
C. Vendors for Replacement Switches.....	27
D. Summary of Hazardous and Universal Waste Handling, Transporting and Recycling Requirements	28
E. Mercury Switch Waste Handling and Transporting Facilities Located in California	33
F. Mercury Switch Waste Destination Facilities that Serve California	35
G. Sample Shipping Log for Mercury Switches	36
H. Vendors for Mercury Spill Kits	37

INTRODUCTION

What is mercury, and why should I care about it?

Mercury is a naturally occurring element that is poisonous and can accumulate in the tissues of animals and people, causing birth defects, nervous disorders, permanent brain damage, and even death through prolonged exposure. Mercury's unique properties include the ability to exist as a liquid at room temperature, and for decades its unique properties have made it useful in a variety of consumer electronic devices and products.

About two-thirds of the mercury released to the environment comes from man-made sources, such as spills, emissions from coal-burning plants, or the incineration or land filling of mercury-containing products. Mercury evaporates at room temperature, and even more so when heated. After it enters the atmosphere, mercury can precipitate to the ground with rain and snow, which may potentially enter lakes, rivers, and watersheds. Once mercury reaches a waterway, bacteria convert some of it to methyl mercury, which is highly toxic and very persistent. Because mercury tends to accumulate in the tissues of animals, animals that are higher up the food chain, such as predatory fish, usually have the highest concentrations of mercury in their tissues.

People can be exposed to harmful levels of mercury through inhalation or skin contact, but the primary route of exposure for most people today is eating mercury-contaminated fish. The concentration of mercury absorbed from routine consumption of affected fish can impair the nervous system and other organs, especially in a developing fetus or a young child. Dangerously high concentrations of mercury have been detected in water bodies throughout California. You may have heard warnings that people should avoid eating certain species and sizes of fish because they contain mercury.

Methyl Mercury in Sport Fish: Information for Fish Consumers

Methyl mercury is a form of mercury that is found in most freshwater and saltwater fish. In some lakes, rivers, and coastal waters in California, methyl mercury has been found in some types of fish at concentrations that may be harmful to human health. The California Office of Environmental Health Hazard Assessment (OEHHA) has issued health advisories to fishers and their families giving recommendations on how much of the affected fish in these areas can be safely eaten. In these advisories, women of childbearing age and children are encouraged to be especially careful about following the advice because of the greater sensitivity of fetuses and children to methyl mercury. For additional information, visit OEHHA's Web site, www.oehha.ca.gov/fish/hq/index.html.

Because of mercury's distinctive ability to reliably conduct electricity under varied temperature and moisture conditions, it is used in light switches in vehicle hoods and trunks, anti-lock braking systems, head lamps, and navigational systems. Auto dismantlers who handle discarded vehicles and repair shops that service operating vehicles represent the last lines of defense against this mercury potentially entering the environment. If the mercury is not removed, it has the potential to be released to the environment when the vehicle is ultimately scrapped and the hulk is crushed, shredded, and melted to make new steel. It is estimated that 700,000 vehicles are shredded each year in California, which, all together, contain approximately 1,500 to 3,000 pounds of mercury.

What is a mercury switch?

A mercury switch, found frequently in the convenience light assemblies in vehicle hoods and trunks, is a small, bullet-shaped capsule that usually is made of steel or glass. The capsule, which contains elemental mercury, enables the switch to complete or break an electric circuit that then turns the hood or trunk convenience lights on or off. Hood and trunk mercury-containing convenience light switches account for about 87 per cent of the total mercury in 1999 and older vehicles.

What are the new California regulations?

In 2001, the California Legislature expanded the scope of the Universal Waste Rule through Senate Bill 633, (Statutes 2001, chapter 656). Refer to the fact sheet, "Senate Bill 633: California's Mercury Reduction Act of 2001" on the Department of Toxic Substances Control's (DTSC) Web site, www.dtsc.ca.gov/Schools/EA_FS_SB633.pdf. In March 2003, DTSC adopted the Mercury Waste Classification and Management regulations found in the California Code of Regulations, title 22 (Cal. Code Regs., tit. 22), section 66273.1 et seq.

Under the new regulations, mercury switches removed from the hoods and trunks of vehicles currently are considered hazardous waste that may be handled as universal waste. The regulations do not currently require the removal of mercury switches from discarded vehicles that are scheduled to be crushed, baled, sheared or shredded for recycling.

However, beginning January 1, 2005, the new regulations require that mercury switches will have to be removed before the vehicles are crushed, baled, sheared or shredded for recycling. Vehicles that are destined to be crushed, baled, sheared or shredded will be considered hazardous waste if they contain mercury switches. Vehicle parts that contain mercury switches will also be considered hazardous waste. The new regulations will allow these products to be managed as universal waste, which has less stringent handling requirements than the generally applicable hazardous waste handling requirements. Refer to the fact sheet, "Managing Universal Waste in California" on DTSC's Web site, www.dtsc.ca.gov/PublicationsForms/HWM_FS_UWR.pdf. None of these products can be disposed of in an ordinary (municipal solid waste) landfill.

Auto repair shops are not required to remove mercury switches from functioning vehicles that they service, although it is recommended. Shops throughout California are voluntarily providing this valuable service to their customers because removing and replacing the switches with a non-mercury switch is simple, takes very little time, and prevents mercury from getting into the soil and ground water. Auto repair shops can charge for this service if they choose.

Why don't automakers stop putting mercury switches in vehicles?

By 2005, new vehicles sold in California will be required by law to be mercury-free. However, the millions of existing vehicles that contain mercury will remain on the roads for years to come.

What is the purpose of this manual?

For compliance with the latest California laws and regulations, this manual will provide general guidance to auto repair shops about how to locate, remove, replace, and manage the mercury switches found in vehicle hood and trunk convenience light assemblies. If anything in this guide is inconsistent with California's laws and regulations, you are required to follow the current laws and regulations.

REMOVING, REPLACING, AND RECYCLING MERCURY SWITCHES

Beginning January 1, 2005, mercury switches must be removed before a vehicle is crushed, baled, sheared or shredded. Removing the convenience light assemblies from vehicle hoods and trunks takes only seconds and can be done at the same time as other vehicle repairs and maintenance are done. The mercury is contained in a sealed metal switch (which looks like a small bullet or capsule) within the light assembly, so there is little danger of it breaking while removing it.

Note: Old Volvos may use glass mercury switches; take extra care when removing these assemblies.

How do I know which vehicle makes and models contain mercury switches?

A list of vehicle makes and models that contain mercury switches are listed in Appendix A. The list is based on the best available information and does not cover all vehicles. The most cautious approach is to assume that the light switches in all vehicle hoods and trunks contain mercury.

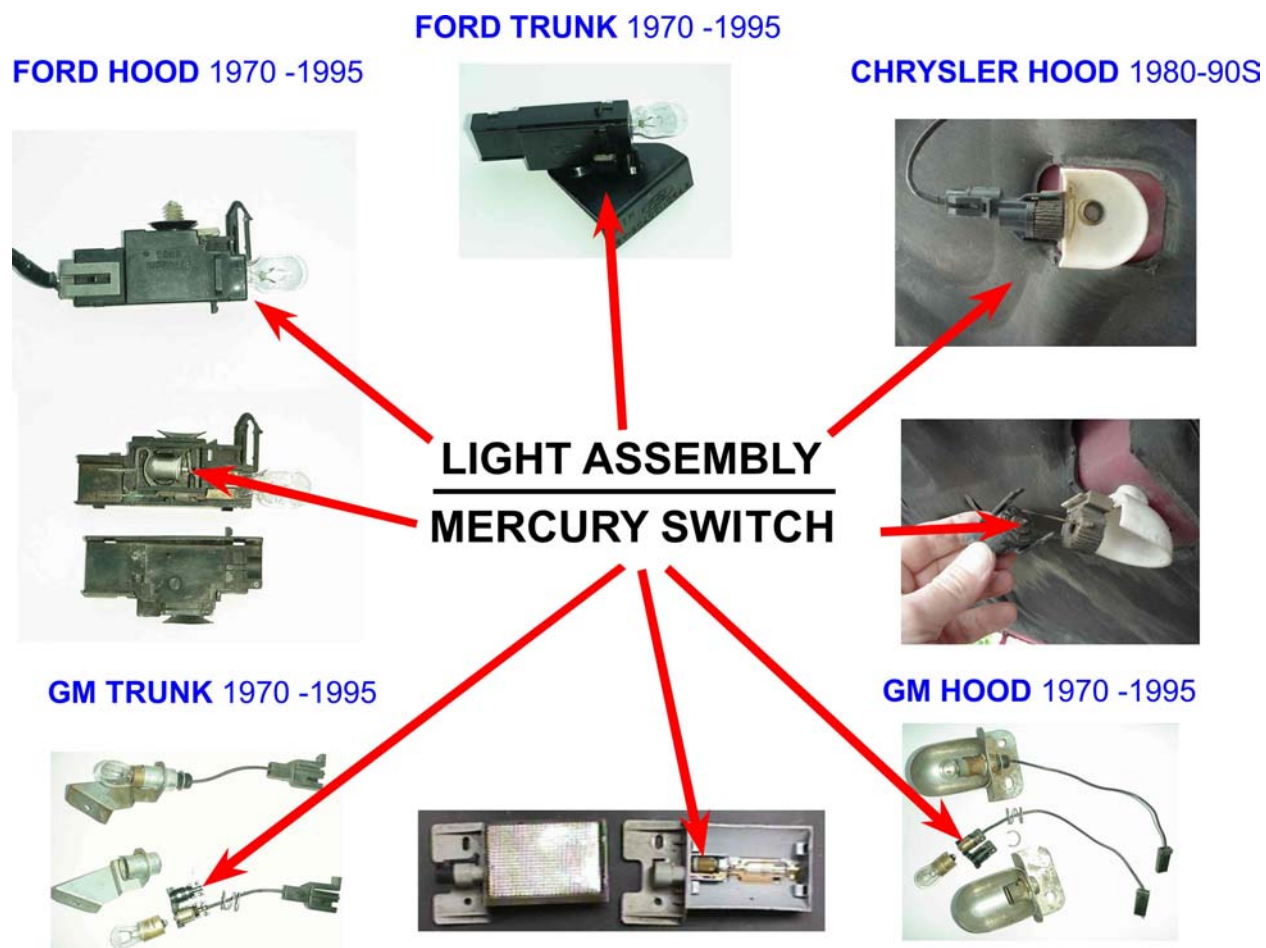
How do I remove, replace and recycle mercury switches?

Removing, replacing and recycling of mercury switches can usually be done using the following five steps. Only people who are qualified, properly trained, and equipped to remove and handle mercury switches should attempt to remove them from a vehicle.

Step 1 - Removing Light Assemblies

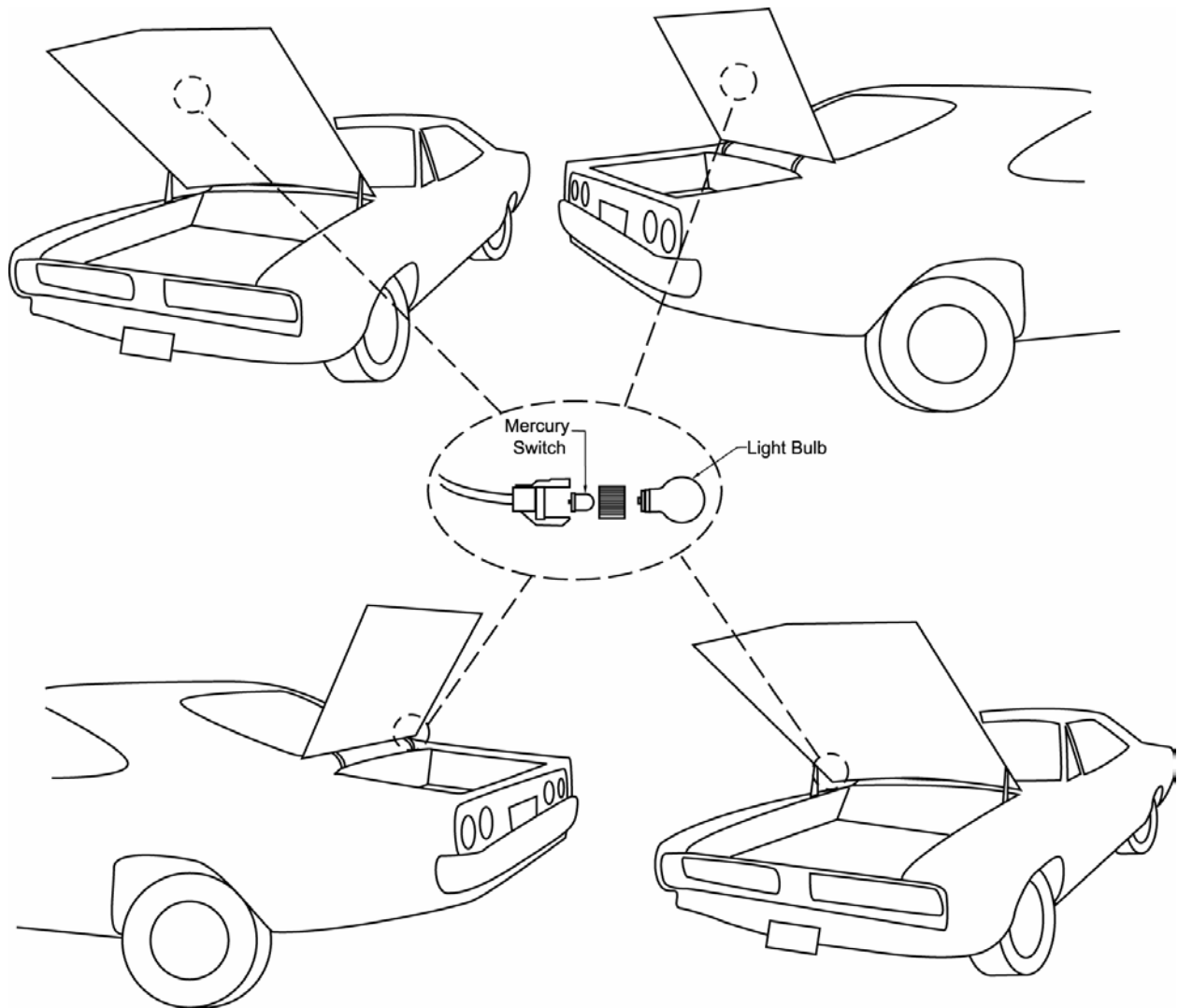
- Locate the small light assembly beneath the vehicle trunk or hood. Examples of common light assemblies that contain mercury switches are shown on the following page. A diagram showing common locations of mercury switches is provided on page seven.
- Disconnect the power supply that is attached to the base of the light assembly.
- Remove any fasteners so you can separate the entire light assembly from the vehicle.
- Put the entire light assembly in a large, properly labeled heavy-plastic bin that has a tight-fitting lid temporarily until you can remove the mercury switches from the light assemblies.
- Repeat these steps for all mercury-containing light assemblies in the vehicle.
When in doubt, assume that a light assembly contains a mercury switch.

EXAMPLES OF CONVENIENCE LIGHT ASSEMBLIES THAT CONTAIN MERCURY SWITCHES



Source: New York State Department of Environmental Conservation

**LOCATION DIAGRAM OF VEHICLE HOOD AND TRUNK CONVENIENCE LIGHT ASSEMBLIES
CONTAINING MERCURY SWITCHES**



Step 2 –Dismantling Light Assemblies

Take apart the light assemblies to identify and remove the mercury switches. The steps for taking the light assemblies apart are given below.

- Identify the snap, latch, or clip that holds the light assembly together. Use a hand tool to remove/open the snap, latch, or clip. Small, flathead screwdrivers or wire cutters generally are all that is required. When the light assembly is open, look for the small, bullet-shaped mercury switch. A typical mercury switch is pictured below.
- Use a small, flathead screwdriver to remove the mercury switch.
- After removing the mercury switch, place it in a small, properly labeled sealable plastic container for storage and transportation. Place only the mercury switch into the storage container (storage is discussed in Step 4). Do not include plastics or metals from the light assembly. If the rest of the light assembly is not contaminated with mercury, it can be disposed of as non-hazardous waste.

MERCURY SWITCH



Source: Pollution Probe, 2000

Do I need to keep records of the mercury switches I remove from vehicles?

Yes. You are required to keep records of the mercury switches removed from vehicles for at least three years. A sample form for keeping track of mercury switches is provided in Appendix B. The way you handle the mercury switches and the records you keep will determine how you may manage them. Although the mercury switches that are removed from vehicles are considered hazardous waste, they may be managed as universal waste. Waste management will be discussed further in Step 5.

Step 3 – Replacing Mercury Switches

The procedure for replacing mercury switches is generally similar for all vehicles. Non-mercury replacement switches will be bullet-shaped or ball-bearing switches. Illustrations and guidance on replacing mercury switches in specific vehicle models are shown on the next five pages of this guide. If a certain make and model is not illustrated, the provided illustrations may still be consulted as general guidance.

A photograph of a non-mercury, bullet-shaped replacement switch is given below. Other replacement switches resemble ball-bearings. Non-mercury replacement switches are available and have proven to be effective for nearly all domestic and foreign vehicles (excluding older foreign vehicles that use a glass ampoule of mercury). A list of vendors of replacement switches is provided in Appendix C. Replacement switches usually cost between \$0.50 and \$3.50 apiece, depending on the quantity ordered.

EXAMPLE OF REPLACEMENT SWITCH



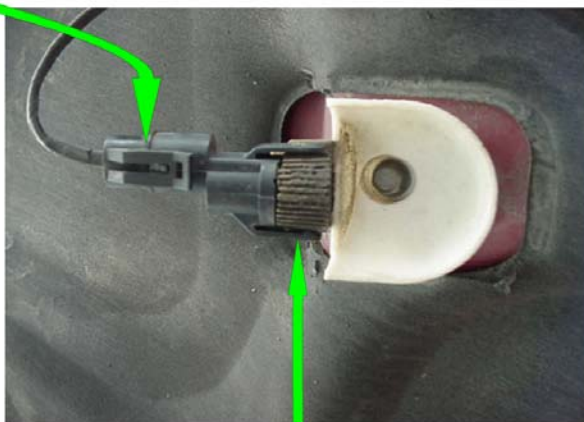
Source: www.signalsystem.com/nonmer.htm

Will replacing the mercury switch change or damage the vehicle?

No. Replacing the mercury switches should have no effect on the light function. Mercury switches can be replaced without damaging the vehicle or adversely affecting the light's performance.

Removal and Replacement of Mercury Switch in 1985-1995 Chrysler Hood Lighting Assembly

1. Remove the wiring clip from the back of the assembly by sliding a screwdriver under the clip and sliding the clip back to remove the power source.



2. Remove the mercury switch holder from the back of the lighting assembly by sliding a screwdriver under the two wing clips and pulling until the switch holder clears the copper rod on the attached section.



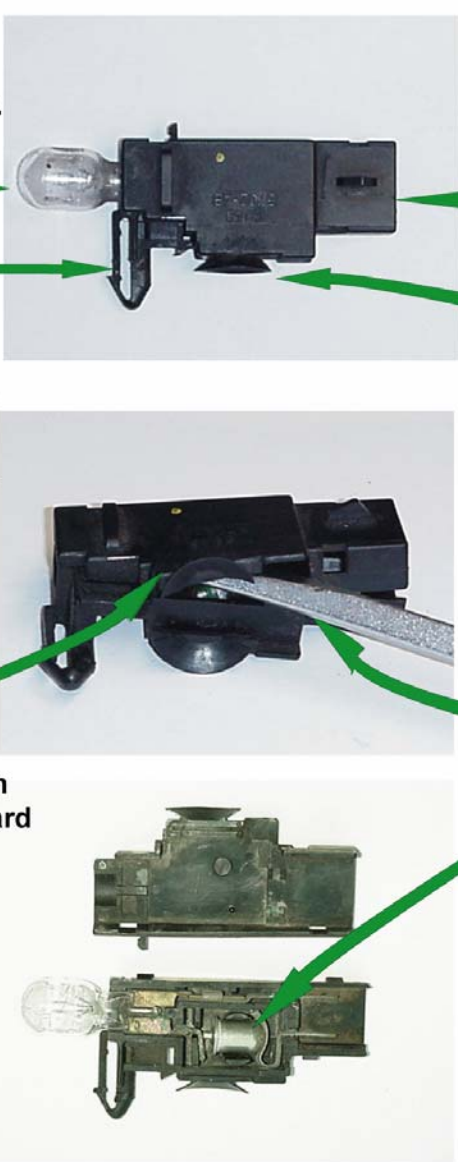
3. Remove the mercury switch from the back of the lighting assembly by hand and replace it with a ball-bearing switch. Put the assembly back together by doing steps 2 and 1 in reverse.

Place the mercury switch inside a properly labeled heavy plastic container with a tight-fitting lid.

* Most Chrysler products have molded lighting assemblies where the mercury switch cannot be replaced. The type seen in this document is found in 1985-1995 Jeeps, Chrysler /Dodge trucks, and some SUVs.

Source: New York Department of Environmental Conservation, 2000. EPA, Region 5, 2003.

Removal and Replacement of Mercury Switch in Ford Hood and Trunk Lighting Assembly

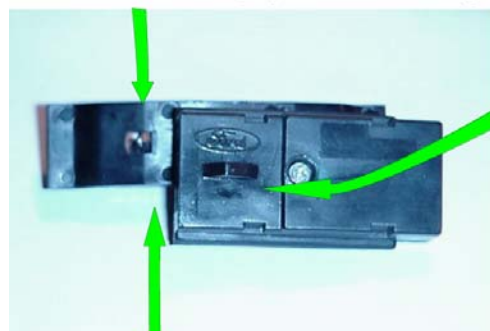
- 
1. Remove the wiring clip from the back of the assembly by sliding a screwdriver under the clip and sliding it back.
 2. Remove the bulb.
 3. Compress the front two-part arrow-shaped leg near the bulb with a screwdriver and pull it out of the mounting hole.
 4. Slide the slotted center mounting assembly off the plastic brace.
 5. Slide a screwdriver between the two-part case at the rear of the assembly to open the rear latch.
 6. Move a screwdriver to the position shown and apply an upward motion to pop the front latching leg out.
 7. Use a screwdriver to pry out the mercury switch.
 8. Place a ball-bearing switch in position with the same orientation as in step 7.
 9. Snap the two-piece casing together.
 10. Put the assembly back in place by reversing 4, 3, 1 and 2.

Place the mercury switch inside a properly labeled heavy plastic container with a tight-fitting lid.

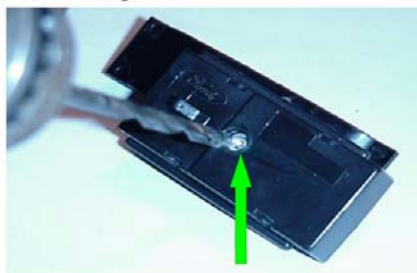
Source: New York Department of Environmental Conservation, 2000. EPA, Region 5, 2003.

Removal and Replacement of Mercury Switch in 1998 Ford Trunk Lighting Assembly

1. Locate the lighting assembly on the driver's side trunk lid arm. Use a screwdriver to pry the assembly fastener off the trunk lid arm.



2. Remove the power source by lifting the wiring connector over the tab and pulling the wiring harness off the lighting assembly.

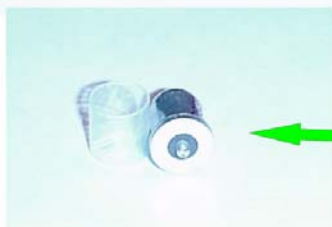


3. Remove the bulb from the assembly by pulling it from the socket.

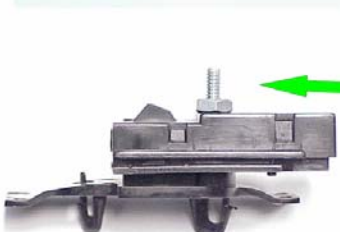


4. Use a drill with a 3/8" bit to remove the head of the pop-rivet that secures the two halves of the assembly.

5. Pry the plastic casing apart using a screwdriver and remove the mercury switch.



6. Remove the plastic insulator from the mercury switch and place it on the ball-bearing switch. Replace the new switch with the insulator in the assembly using the same orientation as in step 5.



7. Remove the old pop rivet. Snap the casing back together. Then use a 1" #8-32 bolt and #8-32 nut to replace the pop-rivet and tighten to secure the assembly. Snap the assembly back into place, reattach the wiring clip, and insert the bulb.



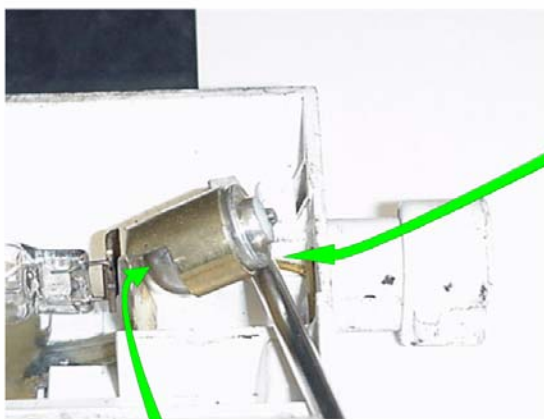
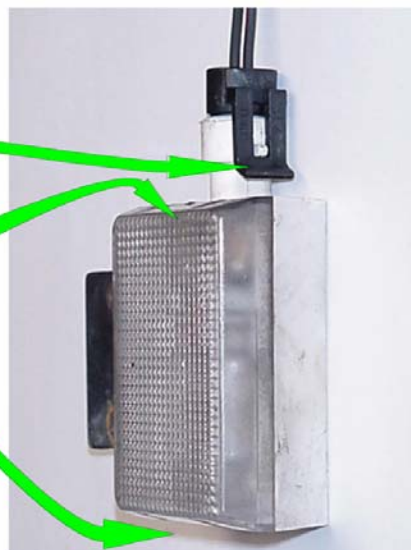
Place the mercury switch inside a properly labeled heavy plastic container with a tight-fitting lid.

Source: New York Department of Environmental Conservation, 2000. EPA, Region 5, 2003.

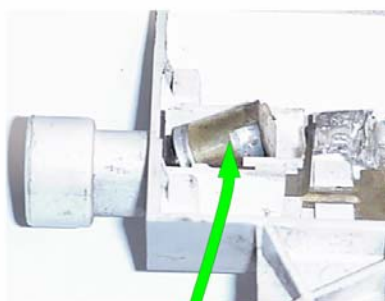
Removal and Replacement of Mercury Switch in 1980-1998 GM Rectangular Hood Lighting Assembly

1. Remove the wiring clip by sliding a screwdriver under the clip and sliding the clip back to remove the power source.

2. Remove the clear plastic dome by gently squeezing the center of the dome on the short sides with your thumb and forefinger.



3. Pry up the mercury switch holder with a small screwdriver.



4. Push the mercury switch out of the holder using a screwdriver and replace the mercury switch with a ball-bearing switch oriented as shown.

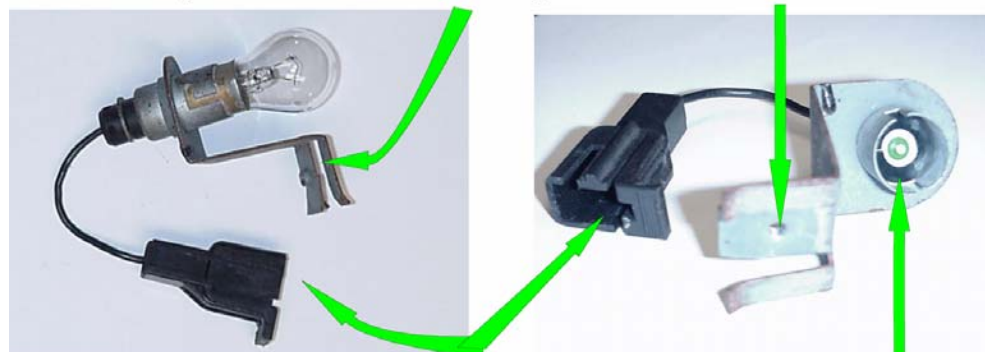
5. Push the mercury switch holder back into place with a screwdriver and adjust the position of the switch to have the center conductor touch the copper strip on the assembly wall. Do steps 2 & 1 in reverse to complete the replacement.

Place the mercury switch inside a properly labeled heavy plastic container with a tight-fitting lid.

Source: New York Department of Environmental Conservation, 2000. EPA, Region 5, 2003.

Removal and Replacement of Mercury Switch in 1970-1998 GM Trunk Lighting Assembly

1. Locate the lighting assembly in a recess adjacent to the trunk latch. Use a 7 mm hex driver to remove the single fastener that holds the assembly. Pull the entire assembly out of the recess hole.

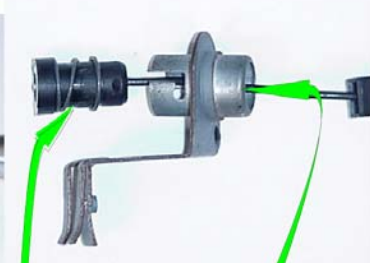


2. Remove the power source by pulling the lighting assembly connector out of its mating connector by hand.

3. Remove the bulb from the assembly by pressing down and twisting it counterclockwise.



4. Remove the clip that secures the mercury switch holder by pulling the clip off with a pair of needle nose pliers.



5. Remove the mercury switch holder by pushing it out of the assembly from the wired end.

6. Remove the spring from the switch holder by sliding it off.



7. Pry the plastic switch holder apart along the center line using a screwdriver and replace the mercury switch with a ball-bearing switch oriented as shown. Snap the plastic switch holder back together, and do steps 6, 5, 4, 3, 2, & 1 in reverse to complete the replacement.

Place the mercury switch inside a properly labeled heavy plastic container with a tight-fitting lid.

Source: New York Department of Environmental Conservation, 2000. EPA, Region 5, 2003.

Step 4 – Storing Mercury Switches

There are several things to keep in mind when collecting and storing mercury switches for eventual recycling.

- Place removed switches in a leak-proof container that is in good condition. Use a heavy plastic pail or container that has a tight-fitting lid.
- Do not use tin or aluminum containers; mercury can react with these metals and also can leak through the seams of the containers.
- Pack the removed switches with packing materials, such as bubble wrap, to prevent breakage or leakage during storage, handling, and transportation.
- Label the container with the words, “Universal Waste – Mercury Switches,” “Waste Mercury Switches” or “Used Mercury Switches.”
- Store the container in a designated accumulation area of your facility where it is unlikely to be disturbed.
- **Do not dispose of removed mercury switches with non-hazardous waste.** See Step 5.

How long can I keep mercury switches at my facility after I remove them?

Mercury switches may be handled as a universal waste or as a hazardous waste. If your facility handles mercury switches as a universal waste, you may keep removed mercury switches in a designated accumulation area at your facility for up to one year. Thereafter, send them off site for recycling. If handled as hazardous waste, mercury switches may be kept on site for 90 to 270 days, depending on the total amount of hazardous waste you generate per month. See Step 5 and Appendix D for more information.

Step 5 – Recycling Mercury Switches

This step includes options for handling removed switches that contain mercury. How they are handled depends on what category of waste they fall into—**hazardous waste or universal waste**. Facilities may be able to use their current hazardous waste contractor (the one who picks up waste oil, for example) to handle mercury switches. Alternatively, removed mercury switches may be managed under the simpler and less expensive Universal Waste Regulations that allow certain widely generated wastes to be managed under reduced handling and transporting requirements than the generally applicable hazardous waste handling requirements. Allowing mercury switches to be handled as universal waste is intended to encourage increased recycling of switches. A complete description of hazardous and universal waste requirements is provided in Appendix D.

Is a hazardous waste manifest required for transporting mercury switches?

Transporting mercury switches as a universal waste does not require a hazardous waste manifest. The switches may be carried by a universal waste transporter under a bill of lading. The mercury switches, however, must be securely packaged to prevent breakage during transport. Some carriers may have company-specific packaging protocols to meet these requirements.

Approximately 450 mercury switches contain one pound of mercury. If a package contains more than one pound of mercury, it must be transported in compliance with U.S. Department of Transportation (DOT) hazardous materials regulations (HMR), which are found in Title 49 Code of Federal Regulations (CFR) Parts 171 – 180. Even if it contains less than one pound of mercury, a package of mercury switches that is shipped by air or water must comply with HMR.

In many states, discarded mercury switches are not universal wastes and may instead be fully regulated as hazardous wastes. In most or all of these states, mercury switches produced by generators of less than 100 kilograms (220 pounds) of hazardous waste per calendar month are exempt from the uniform hazardous waste manifest requirement. Consequently, these generators' discarded mercury switches are also exempt from DOT's requirements for transporting hazardous wastes. Provided they are not transported by air or water and are placed in packages that do not exceed one pound of mercury, these generators' switches are also exempt from HMR.

In states where they are not universal waste, discarded mercury switches produced by generators of more than 220 pounds per month of hazardous waste must be shipped with a uniform hazardous waste manifest.

If managed as hazardous waste, the mercury switches must be transported by a hazardous waste transporter who: (a) has a valid registration with DTSC, (b) must use the uniform hazardous waste manifest, and (c) must deliver the mercury switches to a permitted hazardous waste facility.

Who will accept removed mercury switches?

Mercury switches must ultimately go to an authorized "destination facility" where the mercury is recovered from the switches and recycled. The mercury switches that you collect may be transported directly to a destination facility or to a universal waste handler who consolidates the switches before sending them to a recycler.

Facilities can use their current hazardous waste hauler to transport the mercury switches. Alternatively, mercury switches can be transported by a commercial carrier that accepts universal waste, as long as the mercury switches are handled as such. Such carriers should first be contacted to determine what their policies are for transporting universal waste.

Contact a vendor directly to obtain specific guidance about its services and costs. Appendix E lists some of the mercury switch handling and transporting facilities that serve California. Destination facilities that recover and recycle mercury switches and serve California are listed in Appendix F.

Do I need to keep records of mercury switches that I send off site for recycling?

Yes. If mercury switches are handled as universal waste, a record such as a log, invoice, bill of lading, or other shipping document should be kept for at least three years from the time the mercury switches leave your shop. The record should include the number of mercury switches shipped, date they were shipped, and name and address of the facility to which the mercury switches were shipped. A sample shipping record is provided in Appendix G.

MERCURY SAFETY AND SPILL GUIDELINES

General Safety Precautions

Because mercury is harmful if inhaled, ingested, or touched, proper safety precautions must be followed at all times. Further, you must be prepared to deal with spills or leaks of mercury from switches.

Before you begin handling mercury switches, be sure to have a plan in place for responding to a mercury spill. Your plan should include precautions to prevent spills and leaks from occurring and procedures to prevent the exposure of employees to mercury in the event that a spill does occur. The plan should cover:

- appropriate personal protective equipment,
- procedures for cleaning a spill,
- waste management procedures,
- first aid procedures,
- when to summon emergency responders (such as the local fire department's hazardous materials team), and
- proper disposition of mercury and cleanup residues.

Consult with your local fire department when developing your plan, and make sure you have the necessary cleanup supplies (spill cleanup kits, containers) and personal protective equipment on hand before you begin handling mercury switches.

NOTE: Before any mercury switch is removed, confirm that there are appropriate personal protective equipment and mercury spill response equipment on site and easily accessible, and that staff are properly trained to manage a potential spill.

Important things to keep in mind when cleaning a mercury spill

(The following information is not a complete description of the procedures for responding to a mercury spill.)

- 1. Never use a broom to sweep up mercury. Sweeping creates even smaller beads of mercury, which will be more difficult to collect.**
- 2. Never use a vacuum to clean up a mercury spill. Mercury readily becomes a vapor, and a vacuum will disperse mercury into the air where it can be inhaled.**
- 3. Never wash contaminated clothing in a washing machine. Place contaminated clothing in double garbage bags, tying the bags individually. Dispose the bags using a permitted hazardous waste handler.**

First Aid Measures

If a mercury spill occurs that exposes anyone to mercury, follow these procedures.

- 1. Skin contact*—Wash the area with soap and water and remove any clothing that has come into contact with mercury. Place the mercury-contaminated clothing inside a sealable plastic bag. Seek medical attention immediately. Properly dispose of the sealed bag of mercury-contaminated clothing using a hazardous waste handler at the first opportunity.
- 2. Eye contact*—Flush eyes with running water for 15 minutes, then seek medical attention immediately.
- 3. Inhalation*—Move the person to an area where he or she can get fresh air. Seek medical attention immediately.
- 4. Ingestion*—Seek medical attention immediately.

Contact your local poison control center or health care provider for more information.

FOR MORE INFORMATION

For specific information about mercury and mercury switch management, and information about regulatory requirements, please contact the DTSC office nearest you, or call the regional Public and Business Liaisons at:

- (800) 72TOXIC (1-800-728-6942) or visit www.dtsc.ca.gov
- DTSC Headquarters – (916) 323-2678
1001 I Street, Sacramento, CA 95814-2828
- Sacramento Office – (916) 255-3617
8800 Cal Center Drive, Sacramento, CA 95826
- Berkeley Office – (510) 540-3739
700 Heinz Avenue, 2nd Floor
Berkeley, CA 94710
- Clovis Office – (559) 297-3901
1515 Tollhouse Road, Clovis, CA 93611-0522
- Glendale Office – (818) 551-2830
1011 North Grandview Avenue, Glendale, CA 91201-2205
- Cypress Office – (714) 484-5400
5796 Corporate Avenue, Cypress, CA 90630

For general information about mercury and mercury switches, you may also contact:

- U. S. EPA—RCRA, Superfund & EPCRA Call Center at 800-424-9346 or www.epacallcenter@bah.com
- U.S. EPA at www.epa.gov/mercury/
- U.S. EPA-Region 5 at www.epa.gov/region5/air/mercury/mercury.html

Disclaimer:

This guide does not replace or supersede statutes and regulations. Always review the most current statutes and regulations. The Department of Toxic Substances Control does not endorse or recommend any product or brands mentioned in this guide.

REFERENCES

Auto Dismantlers Guide to Recycling Mercury Switches and Mercury Lamps. Maine Department of Environmental Protection. September 2002.

Automakers Use of Mercury in 2000 Model Year Vehicles.
www.dnr.state.wi.us/org/caer/cea/mercury/2000cars.htm.

Convenience Lighting and ABS Mercury Switch Removal—Mercury Switch Removal and Replacement Instructions. Clean Car Campaign. <http://www.cleancarcampaign.org/switchremoval.html>.

Draft Wisconsin Mercury Sourcebook: Automotive. Wisconsin Department of Natural Resources. 2000.

EPA Region 5, Air Program. Auto mercury switch removal information on Web site.
www.epa.gov/region5/air/mercury/autoswitch.htm

Mercury Auto Switch Out Program—One Organization's Effort to Reduce Mercury Pollution! Northwest Automotive Trades Association (NATA). April 2002.

Mercury-Containing Products and Alternatives. INFORM, Inc. 2001.

Mercury in Products Database. Northeast Waste Management Officials' Association (NEWMOA), Interstate Mercury Education & Reduction Clearinghouse. Search category: Automobile. Search date: March 16, 2003.

Mercury Switch Locations. MERC Switch Out. Pollution Probe.
www.pollutionprobe.org/merc/switchlocation.htm.

Mercury Switch Removal Process. Society of Automotive Engineers (SAE) International. J2456. May 1998.

Michigan Mercury Switch Study. Michigan Department of Environmental Quality, Ford, DaimlerChrysler, Scrap Auto Parts, Sustainable Research Group. December 12, 2002.

New York State Department of Environmental Protection. *Mercury Switch Replacement Poster.* New York: State of New York.

Purchasing for Pollution Prevention. INFORM, Inc. 2001.

State of Minnesota Bid Specifications—Disclosure of Mercury and Vinyl Components. Department of Administration, Materials Management Division, State of Minnesota. 2001.

Switch Out—Auto Dismantlers' Guide to Mercury Switch Collection. Clean Air Foundation/Pollution Probe. Canada. 2001.

APPENDIX A
VEHICLE MAKES AND MODELS THAT HAVE MERCURY-CONTAINING CONVENIENCE LIGHT SWITCHES IN THE HOOD AND/OR TRUNK

Parent Company	Make	Model/Line	Years*
BMW	BMW	7-Series	Prior to 1992; 1995-2002
	Rolls Royce	Rolls Royce	Prior to Mid-1960s
Daimler Chrysler	Chrysler	Ades	1975-1994
		Concorde	1993-1996
		Cordoba	1975-1994
		E Class	1983
		K Car	1987
		Laser	1975-1994
		LeBaron	1975-1994
		New Yorker	1975-1994
		Pacifica	1998; 2003
	Dodge	2500 4x4	1993
		2500 Pick up	1995
		3500 Van	1998
		Aries	1975-1994
		Aspen	1976
		Caravan	1987-1989, 2000
		Caravio	1992
		Dakota	1993-1994, 1998
		Daytona	1987, 1988, 1990
		Durango	1998, 2000
		Duster	1990
		Dynasty	1982, 1989-1992
		Intrepid	1994, 1996
		Lancer	1986
		Landan	1989
		Laser	1975-1994
		Neon	1998, 2000
		Ram Pick up	1997-1998, 2001
		Ram Pick up 1500	1997
		Roadstar	1988
		Shadow	1974-1994
		Spirit	1990-1991, 1994, 1996
		Stratus	1996
		Voyager	1986-1987, 1991
	Eagle	Medallion	1989
		Premier	1988-1989
		Vision	1994

APPENDIX A
VEHICLE MAKES AND MODELS THAT HAVE MERCURY-CONTAINING CONVENIENCE LIGHT SWITCHES IN
THE HOOD AND/OR TRUNK (CONTINUED)

Parent Company	Make	Model/Line	Years*
Daimler Chrysler (continued)	Jeep	Cherokee	1998-1999
		Cherokee Sport	1996
		Grand Cherokee	1993, 1995-1999
		Grand Cherokee Wagoneer	1989
		Wranger	1992, 1994, 1999
	Plymouth	Acclaim	1986, 1990-1992, 1994
		Reliant	1975-1994
		Sundance	1975-1994
Ford	Aerostar		1989
	Bronco		1986
	Bronco II		1974-1994; 1993-1997
	Crown Victoria		1974-1994, 1997, 2000-2001
	E-350		1993; 2000
	Escort	Escort	1974-1995, 1998
		GT	1991
		LX	1991, 1992, 1995, 1997
		Pony	1991
		S/W	1995
		SE	1999
		Wagon	1997
	Excursion		2000-2001
	Expedition		2000-2001
	Explorer		1991-2002
	F-series	F-150	1988, 1990-1991 1993, 1996-1998, 2000-2001
		F-250	1988, 1990-1993, 1995-2001
		F-350	1988, 1996, 1999-2001
		F-150 Supercrew	2000
	Grand Marquis		1985; 2001
	Lincoln	Blackwood	2001
		Continental	1988-1991, 1994-1995; 2000-2002
		Mark 7	1988
		Navigator	2000-2002
		Town Car	1994; 2002
	LTD		1974-1994
	Mazda	Pick up	1996
		RX-7 Turbo	1990
	Mercury	Cougar	1974-1990, 1995
		Grand Marquis	1985-1986, 1993, 1997

APPENDIX A
VEHICLE MAKES AND MODELS THAT HAVE MERCURY-CONTAINING CONVENIENCE LIGHT SWITCHES IN THE HOOD AND/OR TRUNK (CONTINUED)

Parent Company	Make	Model/Line	Years*
Ford (continued)	Mercury (continued)	Mountaineer	1996-2001
		Topaz	1987, 1990, 1992
		Tracer	1988, 1993
		Villager	1993; 2000
		XR4TI	1987
	Mustang		1986, 1989, 1992, 1995, 1996
	Ranger	Ranger	1974-1997, 1998; 1995-2001
		XLT	1995, 1997
	Probe		1989, 1993, 1994
	Sable		1987-1995, 1998-1999
	Sable	LS	1994
	Scorpio		1988; 1985-1993
	Super Duty		1992
	Taurus		1974-1999
	Tempo	Tempo	1974-1994, 1996
		GL	1988, 1993
	Thunderbird		1974-1994
	Van		1988, 1993, 1995
	Volvo	240/260	1975-1991
		740/760	1982-1990
		744/764	1982-1991
	Windstar		1996; 2000
General Motors	Buick	Celebrity	1977-1990
		Century	1977-1992, 1994, 1996, 1998, 2002
		Electra	1981, 1985, 1990
		Fifth Avenue	1985
		Firenza	1977-1990
		LeSabre	1974-1994, 1996-2000
		LeSabre Custom	1989
		Park Avenue	1974-1991, 1998-1999, 2002
		Regal	1974-1994, 1996
		Regal Limited	1991
		Riveria	1986-1990, 1993
		Roadmaster	1992
		Skyhawk	1977-1990
		Skylark	1977-1990, 1993, 1994, 1996, 1998
		Ultra	1998
	Cadillac	Brougham	1987, 1989
		Cimarron	1979, 1998-2003
		DeVille	1979-1991, 1996, 2000-2002; 1998-2003
		ElDorado	1982, 1991, 1992, 2001
		Escalade	2000; 1998-2003

APPENDIX A
VEHICLE MAKES AND MODELS THAT HAVE MERCURY-CONTAINING CONVENIENCE LIGHT SWITCHES IN
THE HOOD AND/OR TRUNK (CONTINUED)

Parent Company	Make	Model/Line	Years*
General Motors (continued)	Cadillac (continued)	Seville SLS/STS	1998-2003
		Standard	1986, 1996
	Chevrolet	98	1983, 1985, 1988, 1994
		250	1998
		1500	1989, 1994
		2500	1997
		1500 4x4	1996, 1998
		3/4 Ten Pick up	1994
		3500 4x4	1997
		Avalanche	2001
		Beretta	1981-1990
		Blazer	1987, 1989, 1993-1994, 1997, 1999-2002
		Blazer 1500	1991
		Blazer S-10	1989-1992, 1994, 1996-1998, 2000, 2002
		C3500 Pick up	1989, 1991
		Camero	1984, 1989
		Caprice	1981-1991
		Caprice Classic	1984, 1988
		Cavalier	1988-1991, 1993, 1995-1996, 2000-2002
		Celebrity	1986-1987, 1996-1997
		Cheyenne	1996
		Corsica	1988-1993
		Express Van	2000-2002
		Impala	2001
		K1500	1996, 1998
		K2500 Pick up	1991, 1994
		K3500 Pick up	1993
		Lumina	1981-1995, 1998
		Lunima Euro	1990
		Lumina Z-34	1992
		Malibu	1997
		Monte Carlo	2000
		Passport	1989
		Pick up	1988, 1989, 1991-1996, 1998, 2000-2002
		S-10 Pickup	1998, 2000
		Silverado	1999
		Suburban	1990-1991, 1994-1995, 1997-2002
		Tahoe	1995-1998
	GMC	4x4	1997-1998
		Denali	2000
		Envoy	1998-2001
		G-20 Van	1995

APPENDIX A
VEHICLE MAKES AND MODELS THAT HAVE MERCURY-CONTAINING CONVENIENCE LIGHT SWITCHES IN THE HOOD AND/OR TRUNK (CONTINUED)

Parent Company	Make	Model/Line	Years*
General Motors (continued)	GMC (continued)	Jimmy	1991, 1993, 1994, 1996, 1998-2001
		Luxury G-Van	2002
		Pick up 1500	1993
		Savanna Van	2000-2002
		Sonoma	1994
		Yukon	1998
	Pontiac	6000	1988
		6000 LE	1990
		Bonneville	1984-1991, 1994, 1995, 2002
		Firebird	1989, 1994-1995, 2002
		Grand Am	1984-1999
		Grand Prix	1985-1986, 1988-1996
		Parisienne	1982
		Sunbird	1984-1990
		Sunfire	1997-2002
		Trans Sport	1993, 1996
		Vibe	2002
	Oldsmobile	88	1990-1991, 1993, 1997
		98	1983, 1985, 1988, 1990, 1992, 1994
		98 Regency	1985
		Achieva	1992-1993
		Aurora	2001
		Bravada	2000-2001
		Calais	1977-1991
		Ciera	1977-1991, 1993-1995
		Cutlass	1977, 1983, 1988, 1990-1992, 1996
		Cutlass Cruiser	1986, 1988, 1992
		Cutlass Supreme	1977-1996
		Delta 88	1977-1995
		Firenza	1984
		Intrigue	1999
		Omega	1980
		Royale	1982, 1986, 1989
		Regency	1977-1990
		Toronado	1977-1990
		Toronado Trofeo	1987-1988
		Wagon	1991
Saab	Saab	9000/900	Pre-1992
Nissan	Nissan	SER	1993
Porche	Porche	944	1985-1991
Toyota	Toyota	Celica GT	1990
		SR5	1986
Volkswagon	Volkswagon	Weekender Van	Not specified

*Note that the year mercury-containing switches were included in a particular model is based on best available information in the public domain. It is possible that mercury switches are included in other model years.

Source:

APPENDIX B

SAMPLE LOG FOR MERCURY SWITCH REMOVALS

[illegible]

APPENDIX C
VENDORS FOR REPLACEMENT SWITCHES

Comus International

454 Allwood Road
Clifton, NJ 07012
Tel: (973) 777-6900
Fax: (973) 777-8405
www.comus-intl.com/productinfo.asp

Signal Systems International

P.O. Box 470, 1700 Route 35 North
Lavallette, NJ 08735
Tel: (732) 793-4668
Fax: (732) 793-4679
<http://www.signalsystem.com/>

Source:

Disclaimer: This list includes commercial firms known to offer non-mercury switches. The Department of Toxic Substances Control does not endorse or recommend a specific vendor. In addition, this list is for informational purposes only and is not meant to be a complete or up-to-date listing of companies that provide replacement switches. Contact companies directly to obtain further information.

APPENDIX D
SUMMARY OF WASTE HANDLING, TRANSPORTING AND RECYCLING REQUIREMENTS
TABLE 1 – UNIVERSAL WASTE¹

Waste Management Requirements	Large Quantity Universal Waste Handler²	Small Quantity Universal Waste Handler²	Conditionally Exempt Small Quantity Universal Waste Generator²	Transporter (Transfer Facility)
Generation Rate	Not applicable	Not applicable	<100 kg (220 lb) of hazardous waste and <1 kg (2.2 lb) of acutely hazardous waste generated onsite per calendar month	None
Required Permits, Approvals, & Notifications	EPA identification number	None	None	Must comply with the HMR ⁴ (49 CFR 171-185) if above the RQ ⁵
Labeling & Marking	Mark as universal waste and date received and/or generated	Mark as universal waste and date received and/or generated	Not required	Verify that existing marking is correct
On-site Accumulation Limit	No quantity limit	< 5,000 kg (11, 000 lb)	<1,000 kg (2,200 lb) of hazardous waste or <1 kg (2.2 lb) of acutely hazardous waste	None
Storage Time Limit	one year—unless documentation indicating that such activity is being held for proper recovery, treatment, or disposal	one year—unless documentation indicating that such activity is being held for proper recovery, treatment, or disposal	None	10 days if transfer facility is located in area that is zoned “industrial”, and 6 days if transfer facility is not.
Training	Basic training—geared toward employee responsibilities, spill response, and emergency procedures	Inform employees; basic training in spill response and emergency procedures for responsible employees	None	Nothing specific required

1. Universal waste requirements apply only during handling and transport of hazardous waste. Destination facility requirements are the same as those for other hazardous wastes.

2. Includes consolidators and collectors.

3. Specific treatment exceptions include removing mercury switches from products, and cleaning a release. Contact DTSC for additional information.

4. Hazardous Materials Regulations.

5. Reportable Quantity.

NOTE: A similar table that gives complete universal waste management requirements and appropriate federal code citations is provided at:
<http://www.epa.gov/epaoswer/hazwaste/id/univwast/tecreq.htm>

APPENDIX D
SUMMARY OF WASTE HANDLING, TRANSPORTING AND RECYCLING REQUIREMENTS
TABLE 1 – UNIVERSAL WASTE (CONTINUED)¹

Waste Management Requirements	Large Quantity Universal Waste Handler²	Small Quantity Universal Waste Handler²	Conditionally Exempt Small Quantity Universal Waste Generator²	Transporter (Transfer Facility)
Recordkeeping	Keep basic records, such as log, invoice, bill of lading, or other shipping document, for three years	Keep basic records, such as log, invoice, bill of lading, or other shipping document, for three years	Not required	No manifest required; keep records of all wastes received for three years
Transporting	Self-transport or use common carrier—ensure sent to appropriate waste handler or destination facility; must comply with HMR ⁴ if transporting universal waste above RQ ⁵	Self transport or use common carrier – ensure sent to proper waste handler or destination facility – must comply with the HMR ⁴ if transporting universal waste above RQ ⁵	Self transport or use common carrier – ensure sent to proper waste handler or destination facility– must comply with the HMR ⁴ if transporting universal waste above RQ ⁵	Transporter may be common carrier; send to proper waste handler or destination facility – must comply with the HMR ⁴ if transporting universal waste above RQ ⁵
Treatment	Generally not allowed (specific exceptions ³)	Generally not allowed (specific exceptions ³)	Generally not allowed (specific exceptions ³)	Not allowed (except by responding to releases)
Reporting	One-time written notification to U.S. EPA of universal waste management unless you already have a U.S. EPA identification number	Not required	Not required	Not required

1. Universal waste requirements apply only during handling and transport of hazardous waste. Destination facility requirements are the same as those for other hazardous wastes.

2. Includes consolidators and collectors.

3. Specific treatment exceptions include removing mercury switches from products, and cleaning a release. Contact DTSC for additional information.

4. Hazardous Materials Regulations.

5. Reportable Quantity.

NOTE: A similar table that gives complete universal waste management requirements and appropriate federal code citations is provided at:
<http://www.epa.gov/epaoswer/hazwaste/id/univwast/tecreq.htm>

APPENDIX D
SUMMARY OF WASTE HANDLING, TRANSPORTING AND RECYCLING REQUIREMENTS
TABLE 2 – HAZARDOUS WASTE

Waste Management Requirements	Large Quantity Generator	Small Quantity Generator	Conditionally Exempt Small Quantity Generator	Consolidator/Collector	Transporter	Destination Facility
Quantity Handled	≥ 1,000 kg/mo (2,200 lb/mo); 1 kg/mo (2.2 lb/mo) acutely hazardous waste	< 1,000 kg/mo (2,200 lb/mo)	≤ 100 kg/mo (220 lb/mo); 1 kg/mo acutely hazardous waste			No limit
Required Permits, Approvals, & Notifications	EPA identification number	EPA identification number	EPA identification number	EPA identification number; Full or Standardized permit	EPA identification number and DTSC registration	EPA identification number and Full or Standardized permit
Labeling & Marking	Label container/tank with the date accumulation begins, the words “hazardous waste,” composition/physical state, hazards, generator’s name/address (title 22, Cal. Code Regs., §66262.34),	Label container/tank with the date accumulation begins, the words “hazardous waste,” composition/physical state, hazards, generator’s name/address (title 22, Cal. Code Regs., §66262.34),	Label, mark, & pack as hazardous waste in accordance with U.S. DOT under Title 49 CFR, Part 172	Confirm proper labeling	Confirm proper labeling	Confirm proper labeling
On-site Accumulation Limit	No quantity limit	< 6,000 kg (13, 200 lb)	≤ 1,000 kg (2,200 lb) hazardous waste; 1 kg (2.2 lb) acutely hazardous waste; or 100 kg (220 lb) spill residue from acutely hazardous waste	No limit	No limit	No limit
Storage Time Limit	90 days	180 to 270 days	None until 100 kg (220 lb) of hazardous waste or 1 kg of acutely hazardous waste is generated, then 180 to 270 days	10 days	In transit - 6 days or 10 days if transfer area zoned industrial	90 days prior to treatment

APPENDIX D
SUMMARY OF WASTE HANDLING, TRANSPORTING AND RECYCLING REQUIREMENTS
TABLE 2 – HAZARDOUS WASTE (CONTINUED)

Waste Management Requirements	Large Quantity Generator	Small Quantity Generator	Conditionally Exempt Small Quantity Generator	Consolidator/Collector	Transporter	Destination Facility
Training	Initial and annual formal training; and spill response and emergency procedures; and comply with title 22 CCR, § 66265.16	Initial informal training; spill response and emergency procedures; and comply with 40 CFR, Part 262.34(d)(5)(iii)	Initial informal training; spill response and emergency procedures	Initial and annual training; spill response and emergency procedures	Initial and annual training; spill response and emergency procedures	Initial and annual training; spill response and emergency procedures

APPENDIX D
SUMMARY OF WASTE HANDLING, TRANSPORTING AND RECYCLING REQUIREMENTS
TABLE 2 – HAZARDOUS WASTE (CONTINUED)

Waste Management Requirements	Large Quantity Generator	Small Quantity Generator	Conditionally Exempt Small Quantity Generator	Consolidator/Collector	Transporter	Destination Facility
Manifest Recordkeeping	Manifest required; keep records for three years	Manifest required; keep records for three years	No manifest required if self-transporting ≤ 19 L (5 gal) or 23 kg (50 lb) to a household hazardous waste collection facility or a TSDF. Otherwise, manifest is required; keep records for three years.	Manifest required	Manifest required. Manifest not required if the transporter is the CESQG ¹ that generated the hazardous waste	Manifest required; keep records for three years
EPA Identification Number/Transporting	Provide transporter with EPA identification number and DTSC reg. Must comply with HMR ² if transporting hazardous waste above RQ ³	Provide transporter with EPA identification number and DTSC reg. Must comply with HMR ² if transporting hazardous waste above RQ ³	Provide transporter with EPA identification number and DTSC registration. Must comply with HMR ² if transporting hazardous waste above RQ ³ . Self transporting ≤ 19 L (5 gal) or 23 kg (50 lb) to household hazardous waste collection is permissible under HSC, §25218.5(b)(1)(A)	Provide transporter with EPA identification number and DTSC reg.	Must comply with HMR ² if transporting hazardous waste above RQ ³	Provide transporter with EPA identification number and DTSC reg.
Treatment	Not allowed without authorization	Not allowed without authorization	Not allowed without authorization	Not allowed	Not allowed	Meeting LDRs ⁴ - IMERC/RMERC at treatment/storage/disposal <u>or</u> recycling facility
Contingency Plan/Emergency Procedure	Written plan required (Cal. Code Regs., tit. 22, chapter 15, article 4)	Comply with 40 CFR, Part 262.34(d)(5)	Not required	Not required	Must respond to releases	Required
Reporting	Biennial, exception, and additional report	Exception and additional report	Exception and additional report	Not applicable	Not applicable	Not applicable

1. Conditionally Exempt Small Quantity Generator

2. Hazardous Materials Regulations

3. Reportable Quantity

4. Land Disposal Restrictions

NOTE: A similar table that compares hazardous and universal management requirements and appropriate federal code citations is provided at <http://www.epa.gov/epaoswer/hazwaste/id/univwast/table.htm>.

APPENDIX E
MERCURY SWITCH WASTE HANDLING AND TRANSPORTING FACILITIES
LOCATED IN CALIFORNIA*

<p>AERC-MTI (Advanced Environmental Recycling Co. – Mercury Technologies International) 30677 Huntwood Avenue Hayward, CA 94555 Ph: 800-628-3675 Fax: 510-429-1498 www.aercrecycling.com</p>	<p>Chemical Waste Management 35251 Old Skyline Road Kettlemen City, CA 93239 Ph: 550-386-9711</p>
<p>Clean Harbors Los Angeles, LLC Los Angeles Facility 5756 Alba Street Los Angeles, CA 90058 Ph: 323-277-2500 Fax: 323-277-2523 www.cleanharbors.com</p>	<p>Clean Harbors of San Jose, LLC San Jose Facility 1040 Commercial Street, Suite 109 San Jose, CA 95112 Ph: 408-451-5000 Fax: 408-453-6045 www.cleanharbors.com</p>
<p>Kinsbursky Brothers, Inc. 1314 North Anaheim Boulevard Anaheim, CA 92801 Ph: 714-738-8516 Fax: 714-441-0857 www.kinsbursky.com</p>	<p>Kinsbursky Environmental Management 101 North Glover Avenue, Suite B Chula Vista, CA 91909 Ph: 619-409-9292 www.kinsbursky.com</p>
<p>Lighting Resources, Inc. Ontario Branch 805 East Francis Street Ontario, CA 91741 Ph: 888-923-7252 Fax: 909-923-7510 www.lightingresourcesinc.com</p>	<p>North State Environmental – Southern California 2776 South Lilac Avenue Bloomington, CA 92316 Ph: 909-875-9288 Fax: 909-875-9813 www.north-state.com</p>
<p>North State Environmental 5519 Clairemont Mesa Boulevard San Diego, CA 92117 Ph: 858-273-8669 Fax: 858-273-8678 www.north-state.com</p>	<p>North State Environmental – Northern California 90 South Spruce Avenue Suite C3 South San Francisco, CA 94080 Ph: 650-588-2838 Fax: 650-588-1950 www.north-state.com</p>

APPENDIX E
MERCURY SWITCH WASTE HANDLING AND TRANSPORTING FACILITIES
LOCATED IN CALIFORNIA (CONTINUED)*

Onyx Environmental Services, Inc. 4227 Technology Drive Fremont, CA Ph: 510-651-2964 Fax: 510-656-4926 www.onyxes.com	Onyx Environmental Services, Inc. 1704 West First Street Azusa, CA 91702 Ph: 626-334-5117 Fax: 626-334-4563 www.onyxes.com
Onyx Environmental Services, Inc. 5202 Oceanus Drive Huntington Beach, CA 92649 Ph: 714-379-6000 Fax: 714-379-6010 www.onyxes.com	Onyx Environmental Services, Inc. 1125 Hendey Street Richmond, CA 94801 Ph: 510-233-8001 Fax: 510-235-9427 www.onyxes.com
Recyclights, Inc. 2439 Industrial Parkway West Hayward, CA 94545 Ph: 800-884-8982 Fax: 510-782-8984	Safety-Kleen Systems, Inc. Cluster II, Building 3 5400 Legacy Drive Plano, TX 75024 Ph: 800-669-5740 Fax: 972-265-2000 www.safety-kleen.com
Thomas Gray & Associates, Inc. 1205 West Barkley Avenue Orange, CA 92868 Ph: 714-997-8090 Fax: 714-997-3561 www.tgainc.com	

*Most hazardous waste transporters registered with DTSC will provide waste hauling services to generators and handlers of mercury-containing switches and devices.

Sources: The list was compiled from information obtained from phone interviews and an internet survey of companies included on nationwide lists maintained by the Association of Lighting and Mercury Recyclers (www.almr.org); the National Electric Manufacturers Association (www.nema.org/lamprecycle/); the U.S. EPA's Office of Solid Waste and Emergency Response (www.epa.gov/epaoswer/hazwaste/id/univwast/where.htm); and several state resource agencies. A list of permitted commercial facilities that accept hazardous waste for a fee is also available at the DTSC Web site: www.dtsc.ca.gov/HazardousWaste/index/html.

Disclaimer: This list includes commercial firms found to offer mercury-containing switch handling services. The Department of Toxic Substances Control does not endorse or recommend any specific vendor. In addition, this list is for informational purposes only and is not meant to be a complete or up-to-date list of companies that provide mercury-handling and recycling services in California. Contact companies directly to obtain information regarding services provided, company-specific packaging and labeling requirements, and costs.

APPENDIX F
MERCURY SWITCH WASTE DESTINATION FACILITIES
THAT SERVE CALIFORNIA*

<p>Advanced Environmental Recycling Co. – Mercury Technologies International (AERC-MTI) 2591 Mitchell Avenue Allentown, PA 18103 Ph: 800-554-2372 Fax: 610-791-7696 www.aercrecycling.com</p>	<p>Bethlehem Apparatus Company, Inc. 890 Front Street, P.O. Box Y Hellerton, PA 18055 Ph: 610-838-7034 Fax: 610-838-6333 www.bethlehemapparatus.com</p>
<p>Lighting Resources, Inc. 498 Park Drive Greenwood, IN 46143 Ph: 317-888-3889 Fax: 317-888-3890 www.lightingresourcesinc.com</p>	<p>Mercury Waste Solutions, Inc. National Processing Center 21211 Durand Avenue Union Grove, WI 53182-9711 Ph: 800-741-3343 Fax: 262-878-2699 www.mercurywastesolutions.com</p>
<p>NSSI Sources and Services, Inc. P.O. Box 34042 Houston, TX 77234 Ph: 713-641-0391 Fax: 713-641-6153 www.nssihouston.com</p>	<p>Onyx Environmental Services, Inc., dba Onyx Special Services, Inc. 5736 West Jefferson Street Phoenix, AZ 85043 Ph: 800-368-9095 www.superiorserv.com</p>

*These facilities operate a mercury retort on site to recover mercury from switches.

Sources: The list was compiled from information obtained from phone interviews and an internet survey of companies included on nationwide lists maintained by the Association of Lighting and Mercury Recyclers (www.almr.org); the National Electric Manufacturers Association (www.nema.org/lamprecycle/); the U.S. EPA's Office of Solid Waste and Emergency Response (www.epa.gov/epaoswer/hazwaste/id/univwast/where.htm); and several state resource agencies. A list of permitted commercial facilities that accept hazardous waste for a fee is also available at the DTSC Web site: www.dtsc.ca.gov/HazardousWaste/index/html.

Disclaimer: This list includes commercial firms that were found to offer mercury-containing switch recovery services. The Department of Toxic Substances Control does not endorse or recommend a specific vendor. In addition, this list is for informational purposes only and is not meant to be a complete or up-to-date list of vendors that provide mercury recovery services in California. Contact companies directly to obtain information regarding services provided, company-specific packaging and labeling requirements, and costs.

APPENDIX G

SAMPLE SHIPPING LOG FOR MERCURY SWITCHES

[illegible]

APPENDIX H

VENDORS FOR MERCURY SPILL KITS

<p>Abatix Environmental Supply 3011 East Broadway, Suite #300 Phoenix, AZ 85040 Phone: (602) 323-1941 ; (800) 889-5186 http://www.abatix.com/</p>	<p>Lab Safety Supply P.O. Box 1368 Janesville, WI 53547-1368 Phone: (800) 356-0783 http://www.labsafety.com/home.htm</p>
<p>Advanced Environmental Solutions 204 First Avenue South, Third Floor Seattle, Washington 98104 Phone: 800-275-3549 or 206-652-2323 http://www.advenvironmental.com/</p>	<p>Mallinckrodt Baker, Inc. 222 Red School Lane Phillipsburg, NJ 08865 Phone: (800) 582-2537 http://www.mallbaker.com/</p>
<p>Bel-Art Products 6 Industrial Rd. Pequannock, NJ 07440-1992 Phone: (973) 694-0500 http://www.bel-art.com/</p>	<p>Thomas Scientific 99 High Hill Rd. @ I-295 P.O. Box 99 Swedesboro, NJ 08085 Phone: (800) 345-2100 http://www.thomassci.com</p>
<p>Bethlehem Apparatus Co. Inc. Resource Recovery and Recycling Division 890 Front St., P.O. Box Y Hellertown, PA 18055 Phone: (610) 838-7034 http://www.mercuryrecycling.com</p>	<p>VWR Scientific Products 5 Marway Circle Rochester, NY 14624 Phone: (800) 932-5000 or (716) 247-0613 http://www.vwrsp.com</p>
<p>Fisher Scientific 2000 Park Lane Pittsburgh, PA 15275 Phone: (800) 772-6733 https://www1.fishersci.com</p>	<p>Lamp Recyclers of Louisiana, Inc. 46257 Morris Road Hammond, LA 70404-2962 Phone: (985) 345-4147 http://www.i-55.com/lamprecycler/</p>
<p>Flinn Scientific, Inc. P.O. Box 219 Batavia, IL 60510 Phone: (800) 452-1261 http://www.flinnsci.com</p>	<p>Sanderson Safety Supply 1101 SE 3rd Ave. Portland, Oregon 97214 Phone: (800) 547-0927 http://www.sandersonsafety.com/</p>

Source:

Disclaimer: This list includes commercial firms known to sell mercury spill kits. The Department of Toxic Substances Control does not endorse or recommend a specific vendor. In addition, this list is for informational purposes only and is not meant to be a complete or up-to-date list of companies that provide spill kits. Contact companies directly to obtain further information.